

United States Digital X-Ray Systems Market By Technology (Computed Radiography, Direct Radiography), By Modality (Fixed, Mobile), By Application (General Radiography, Dental Applications, Mammography, Others), By End User (Diagnostic Centers, Hospitals, Others), By Form (Dry, Liquid), By Region, Competition, Forecast & Opportunities, 2019-2029F

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Abstracts

The United States Digital X-Ray Systems Market was valued at USD 3.54 Billion in 2023 and is anticipated to reach USD 5.14 Billion in the forecast period with a CAGR of 7.58% through 2029. Digital X-Ray systems have truly revolutionized medical imaging technology, bringing about a remarkable advancement in patient care. Unlike traditional film-based systems, these cutting-edge systems employ state-of-the-art digital sensors to capture and store images with exceptional precision and clarity. The digital format not only enables immediate review and manipulation for enhanced visibility but also facilitates effortless sharing of images among healthcare professionals, promoting collaboration and informed decision-making. Moreover, the implementation of digital X-Ray technology often results in reduced radiation exposure for patients, ensuring a safer and more reliable alternative to conventional methods. By minimizing radiation dosage while maintaining diagnostic accuracy, these systems prioritize patient safety and well-being.

With these significant benefits, digital X-Ray systems continue to shape the future of medical imaging, providing improved diagnostic capabilities and ultimately enhancing patient outcomes. As technology advances and further refinements are made, we can



anticipate even greater detail and accuracy in the visualization of anatomical structures, leading to more precise diagnoses and targeted treatment plans. Digital X-Ray systems represent a milestone in medical imaging, offering a comprehensive solution that combines advanced imaging capabilities, efficient data management, and increased safety measures. By embracing this transformative technology, healthcare providers can deliver higher quality care, enabling early detection, accurate diagnoses, and improved patient outcomes.

Key Market Drivers

Increasing Occurrence Levels of Orthopedic Diseases and Cancers

The escalating prevalence of orthopedic diseases and cancers in the United States is significantly driving the demand for digital X-ray systems, which are pivotal in enhancing diagnostic accuracy and patient outcomes. Orthopedic conditions such as arthritis, osteoporosis, and musculoskeletal injuries necessitate precise imaging for effective treatment planning. Digital X-ray systems provide high-resolution images that facilitate the identification and assessment of bone and joint abnormalities, enabling healthcare providers to develop personalized treatment strategies. The digital X-ray systems are instrumental in the early detection and diagnosis of cancers, including bone and lung cancers. These systems allow physicians to identify subtle abnormalities and lesions that may indicate the presence of malignancies, leading to timely interventions and improved survival rates.

According to the National Cancer Institute, the cancer incidence rate in the United States is 440.5 per 100,000 men and women per year, with an estimated 14,910 children and adolescents aged 0 to 19 diagnosed with cancer in 2024. The American Cancer Society projects a sustained rise in cancer incidences, coupled with a similar trend in orthopedic diseases, especially among the aging population. This underscores the urgent need for advanced diagnostic tools like digital X-ray systems to meet the increasing demand for accurate and efficient diagnosis. Furthermore, the ongoing pandemic emphasizes the importance of minimizing invasive procedures whenever possible, further driving the demand for these non-invasive imaging systems.

The increase in orthopedic diseases and cancer cases in the United States necessitates the widespread adoption of digital X-ray systems in the healthcare industry. These advanced imaging technologies offer unparalleled diagnostic capabilities, empowering healthcare professionals to deliver timely and effective care to their patients.



Increasing Number of Serious Injuries

The United States is experiencing a significant increase in the incidence of serious injuries, a trend that is expected to drive the demand for digital X-ray systems. According to the Centers for Disease Control and Prevention (CDC), unintentional injuries are the third leading cause of death in the U.S., with 227,039 fatalities reported in 2022. This surge in injuries is attributed to several factors, including a growing population engaged in high-risk activities such as contact sports, outdoor adventures, and high-intensity fitness programs. Additionally, urbanization and an aging demographic contribute to an increased occurrence of injuries resulting from falls and accidents.

Digital X-ray systems are crucial in the diagnosis and management of these injuries, offering faster, more detailed, and easily shareable imaging compared to traditional X-ray technology. This capability enables quicker decision-making and improved patient outcomes. Moreover, the ability of digital systems to reduce radiation exposure enhances their appeal in a health-conscious society.

Considering these factors, the U.S. healthcare sector is expected to experience a surge in demand for digital X-ray systems. Hospitals, clinics, and imaging centers may need to upgrade their existing infrastructure to keep up with this demand, ensuring the availability of the best diagnostic tools for treating the growing number of patients with serious injuries.

Advantages of Digital X-ray Systems Over Conventional X-rays

Digital X-ray systems have brought about a revolution in the field of radiography, offering numerous advantages over conventional methods and driving their demand in the United States healthcare sector. These state-of-the-art systems not only enable faster processing times, significantly reducing patient waiting periods, but also enhance efficiency for clinicians, empowering them to provide prompt and accurate diagnoses. Unlike traditional films, digital X-rays can be instantly viewed, facilitating immediate assessment and treatment planning. Furthermore, the images produced by these systems offer higher resolution, allowing for better visualization of anatomical structures and resulting in improved diagnostic accuracy. Clinicians can easily enhance the images to highlight specific areas of interest, further augmenting their diagnostic capabilities.

Seamless integration into the digital landscape of modern healthcare is one of the most



significant advantages of digital X-ray systems. The digital nature of these X-rays enables effortless storage and retrieval, ensuring readily accessible patient data for healthcare professionals. This promotes streamlined collaboration and information sharing, ultimately enhancing the overall quality of patient care.

Digital X-rays require lower radiation exposure compared to their conventional counterparts, making them a safer alternative for patients. This reduction in radiation exposure not only minimizes the potential risks associated with repeated imaging but also aligns with the healthcare industry's commitment to prioritizing patient safety. Considering the cost-effectiveness, efficiency, and improved patient care associated with digital X-ray systems, it is unsurprising that their demand is expected to surge as the U.S. healthcare industry continues to embrace technological advancements. With a focus on service quality and patient well-being, healthcare providers are increasingly recognizing the superiority of digital X-ray systems in meeting the evolving needs of their practice.

Key Market Challenges

High Initial Cost of Installation

The digital X-ray systems market in the United States is facing a significant barrier to growth due to the high initial cost of installation. Healthcare facilities, particularly smaller clinics and hospitals are finding it challenging to afford these systems' upfront expenditure. This high investment cost includes not only the purchase of the digital X-ray machine itself, but also the associated expenses of training medical personnel, maintaining the equipment, and updating software systems over time. Additionally, the expenditure does not stop after the installation. The ongoing costs of digitizing health records and maintaining digital databases are further contributing to the total expense incurred. As the U.S healthcare sector grapples with cost pressures, the burgeoning expense associated with digital X-rays is likely to deter many potential buyers, reducing overall demand. Instead, these institutions might choose to continue using traditional radiography equipment, despite the advanced capabilities of digital systems. Therefore, while digital X-ray systems present a significant technological advancement, their high initial installation cost poses a potential setback to their widespread adoption in the United States.

New Sales Affected by the Increasing Use of Refurbished Devices

As the market for refurbished devices continues to grow, it's projected that its impact will

United States Digital X-Ray Systems Market By Technology (Computed Radiography, Direct Radiography), By Modali...



be felt across a range of industries, including the digital x-ray systems market in the United States. Manufacturers of new digital x-ray systems are beginning to feel the pinch as healthcare providers, under pressure to reduce costs, are opting for refurbished equipment. These refurbished devices offer similar functionality at significantly lower costs, making them an attractive option for budget-conscious buyers. Consequently, the demand for new machines is expected to decrease.

The refurbished devices market's reliability and quality have seen a marked improvement over the years, further encouraging this trend. Advances in technology and rigorous refurbishment processes have ensured that these devices perform at par with their new counterparts. This has instilled confidence in buyers, as they can now rely on refurbished devices to meet their needs without compromising on quality or performance. Nevertheless, while this shift presents a challenge for manufacturers of new digital x-ray systems, it also offers an opportunity to innovate and develop costeffective solutions that can compete effectively with refurbished devices. By focusing on research and development, manufacturers can explore new materials, components, and manufacturing processes to create advanced systems that strike a balance between affordability and cutting-edge technology. It signifies a shifting landscape that demands adaptation and rethinking strategies to maintain a competitive edge in a rapidly changing market environment. Manufacturers need to embrace this change, collaborate with healthcare providers, and understand the evolving needs of the market. By doing so, they can position themselves as leaders in the industry and provide solutions that meet the demands of budget-conscious buyers while delivering the latest advancements in digital x-ray technology.

Key Market Trends

Increasing Adoption of Teleradiology

The increasing adoption of teleradiology in the United States is expected to have a profound impact on the demand for digital X-ray systems. Teleradiology, which involves the electronic transmission of radiological patient images from one location to another, revolutionizes the way medical professionals collaborate and provide patient care. By enabling the sharing of images beyond geographical limitations, teleradiology facilitates timely interpretation by specialists, regardless of their physical location. This not only enhances patient care but also eliminates the need for patients to travel long distances for specialized consultations. Digital X-ray systems play a crucial role in this technology-driven revolution. These systems provide clear and high-resolution images that can be easily shared and analyzed, unlike traditional film-based X-ray systems that have



physical limitations. The superiority of digital X-ray systems lies not only in their image quality but also in their ability to enhance diagnostic accuracy through features such as zooming, image manipulation, and computer-aided detection.

The current global health crisis has further emphasized the importance of remote diagnostics. With the need to minimize physical contact and reduce the risk of infection, healthcare facilities are increasingly inclined to replace their conventional X-ray systems with digital alternatives. Digital X-ray systems offer the advantage of remote access and allow medical professionals to provide timely and accurate diagnoses, even from a distance. This not only ensures the safety of patients and healthcare providers but also improves overall patient care by enabling faster treatment decisions and reducing waiting times.

The scalability and cost-effectiveness of digital X-ray systems further add to their appeal. These systems can be easily integrated into existing healthcare infrastructure and can accommodate the growing volume of patient images with minimal disruption. Moreover, digital X-ray systems eliminate the need for costly film processing and storage, resulting in significant cost savings for healthcare facilities. As teleradiology continues to play an increasingly vital role in the U.S. medical landscape, the demand for digital X-ray systems is expected to soar. The widespread adoption of this technology will contribute to the overall advancement of healthcare, enabling seamless collaboration, improving diagnostic accuracy, and ultimately enhancing patient outcomes.

Rise In Technological Advancements

The United States Digital X-Ray Systems Market is poised for significant growth, driven by rapid technological advancements that enhance diagnostic capabilities and patient care. Digital X-ray systems offer superior image quality, reduced radiation exposure, and faster processing times compared to traditional film-based methods, making them increasingly essential in modern healthcare settings. A key factor contributing to the adoption of digital X-ray systems is the ongoing digitalization of healthcare. The integration of electronic health records (EHRs) and health information exchange platforms has streamlined the management and sharing of patient data. According to the Centers for Disease Control and Prevention (CDC), as of 2021, 88.2% of officebased physicians in the U.S. were using any EHR system, with 77.8% utilizing a certified EHR system. This widespread adoption of EHRs facilitates the seamless incorporation of digital imaging technologies, including digital X-ray systems, into clinical workflows.



The integration of artificial intelligence (AI) and machine learning into digital X-ray systems further enhances their diagnostic accuracy and efficiency. AI algorithms can assist in detecting anomalies, reducing human error, and expediting the diagnostic process. The National Institutes of Health (NIH) highlights the potential of AI in medical imaging, noting that 'digital health technologies powered by machine learning/artificial intelligence can exacerbate existing racial and ethnic disparities due to measurement biases, as well as differential access to the technologies.' Addressing these disparities is crucial to ensure equitable access to advanced diagnostic tools.

Additionally, the increasing prevalence of chronic diseases and the aging population in the U.S. necessitate efficient and accurate diagnostic tools. Digital X-ray systems are instrumental in early detection and monitoring of conditions such as osteoporosis, arthritis, and various cancers, thereby improving patient outcomes and reducing healthcare costs.

Segmental Insights

Technology Insights

Based on the Technology, Direct Radiography (DR) emerged as the dominant segment in the United States Digital X-Ray Systems Market in 2023 due to its superior features and benefits. DR offers faster imaging times, allowing healthcare professionals to obtain results more quickly and efficiently. Furthermore, the ability to digitally manipulate images provides optimal results, ensuring exceptional clarity and detail in radiographic images. This level of precision enables healthcare professionals to make more accurate diagnoses, leading to improved patient care. DR significantly reduces radiation exposure for patients compared to traditional CR, making it a safer and more patientfriendly solution in radiography technology. The advanced image processing algorithms of DR not only enhance image quality but also minimize radiation dosage, prioritizing patient safety without compromising the integrity of the diagnostic process. Moreover, DR seamlessly integrates with electronic health record systems and is compatible with other digital imaging modalities, enhancing workflow efficiency and streamlining patient care. This efficient integration allows healthcare providers to access and share patient information easily, leading to improved collaboration and continuity of care. Overall, the adoption of DR has revolutionized the field of radiology by setting new standards for diagnostic imaging. Its superior features, such as faster imaging times, exceptional image quality, reduced radiation exposure, and seamless integration, have made it the preferred choice for many healthcare providers. With its continuous advancements, DR



continues to shape the future of radiography, improving patient outcomes and advancing the practice of radiology.

Modality Insights

Based on the Modality, Mobile Digital X-ray systems are the fastest-growing segment in the United States Digital X-Ray Systems Market in 2023. This is due to their unparalleled convenience and flexibility. These state-of-the-art systems enable healthcare professionals to deliver fast and efficient patient care across various locations, enhancing accessibility and reducing waiting times. With their versatile and portable design, they prove particularly beneficial in emergency medicine, bedside imaging, and rural healthcare settings, addressing the unique challenges faced in these areas. The widespread adoption of mobile systems is driven by their ability to provide high-quality imaging, seamless integration with existing healthcare infrastructure, and improved patient outcomes. Given their significant impact on healthcare delivery, it is no surprise that Mobile Digital X-ray systems are poised to continue their dominance in the U.S. market.

Regional Insights

The West region emerged as the dominant region in the United States Digital X-Ray Systems Market in 2023, holding the largest market share. This is primarily due to several factors. The region has a high concentration of key players in the healthcare industry, including renowned hospitals, research institutions, and medical device manufacturers. This leads to increased competition and constant innovation as these entities strive to stay at the forefront of medical imaging technology. The Western region benefits from a significant healthcare expenditure, which allows for substantial investments in advanced imaging systems and technologies. The region's healthcare infrastructure is well-equipped with state-of-the-art facilities, making it an attractive market for the adoption of digital X-ray systems. Moreover, the rapid adoption of these advanced imaging systems in the Western region further solidifies its position as a leader in the market. The region's healthcare professionals and organizations have recognized the benefits of digital X-ray systems in terms of accuracy, efficiency, and patient care. This widespread acceptance and utilization contribute to the dominance of the Western region in the digital X-ray systems market.

Key Market Players

Siemens Medical Solutions Inc.



GE Healthcare Technologies Inc.

Koninklijke Philips N.V.

Canon Medical Systems Inc.

Fujifilm Holdings America Corporation

Hologic, Inc.

Carestream Health, Inc.

Varex Imaging Corporation

MinXray, Inc.

KUB Technologies, Inc.

Report Scope:

In this report, the United States Digital X-Ray Systems Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

United States Digital X-Ray Systems Market, By Technology:

Computed Radiography

Direct Radiography

United States Digital X-Ray Systems Market, By Modality:

Fixed

Mobile

United States Digital X-Ray Systems Market, By Application:

United States Digital X-Ray Systems Market By Technology (Computed Radiography, Direct Radiography), By Modali...



Dental Applications

Mammography

Others

United States Digital X-Ray Systems Market, By End User:

Diagnostic Centers

Hospitals

Others

United States Digital X-Ray Systems Market, By Region:

Northeast Region

Midwest Region

West Region

South Region

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the United States Digital X-Ray Systems Market.

Available Customizations:

United States Digital X-Ray Systems Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:



Company Information

Detailed analysis and profiling of additional market players (up to five).



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